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IN THE CLAIMS:

Please cancel claims 1 through 35 without prejudice or disclaimer to the subject matter contained therein and substitute therefore the following new claims:

--36. (New) An implant for insertion into and permanent anchorage in bone tissue, comprising an intraosseous anchoring structure of a generally circular cross-section, said anchoring structure comprising a first cylindrical section of a first diameter and a second cylindrical section of a second diameter, said second diameter being less than said first diameter, said first and second cylindrical sections each being provided with a screw thread profile, characterized in that said anchoring structure comprises a tapered connecting section provided between and interconnecting said first and second cylindrical sections.

37. (New) An implant as claimed in claim 36, wherein the implant is a fixture of an orthopedic prosthesis.

38. (New) An implant as claimed in claim 37, wherein the implant is a femur fixture of a hip-joint prosthesis.

39. (Amended) An implant as claimed in claim 36, wherein said connecting section has a frusto-conical shape.

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40. (New) An implant as claimed in claim 39, wherein said connecting section at one end has a base diameter essentially equal to said first diameter of said first cylindrical section, and at the other end has a top diameter essentially equal to said second diameter of said second cylindrical section.

41. (New) An implant as claimed 39, wherein said connecting section has a flank angle in the range of 10° - 50° .

42. (New) An implant as claimed in claim 36, wherein said connecting section is at least partly provided with a roughened surface.

43. (New) An implant as claimed in claim 42, wherein said roughened surface is at least partly a blasted surface.

44. (New) An implant as claimed in claim 42, wherein said roughened surface is at least partly provided with a circumferentially oriented roughness.

45. (New) An implant as claimed in claim 44, wherein said circumferentially oriented roughness is in the form of circumferential beads.

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46. (New) An implant as claimed in claim 45, wherein said circumferential beads has a height less than that of the screw thread profiles of said first and second cylindrical sections.

47. (New) An implant as claimed in claim 46, wherein the height of said circumferential beads is no greater than 0.3 mm.

48. (New) An implant as claimed in claim 44, wherein said circumferentially oriented roughness is in the shape of a screw thread profile.

49. (New) An implant as claimed in claim 48, wherein the screw thread profile of said connecting section differs from the screw thread profiles of said first and second cylindrical sections.

50. (New) An implant as claimed in claim 49, wherein the screw thread profile of said connecting section has a height less than that of the screw thread profile of said first and second cylindrical sections.

51. (New) An implant as claimed in claim 50, wherein the screw thread profile of said connecting section is in the form of microthreads.

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52. (New) An implant as claimed in claim 51, wherein the height of said microthreads is no greater than 0.3 mm.

53. (New) An implant as claimed in claim 17, wherein the heights of the screw thread profiles of said first and second cylindrical sections and said connecting section are essentially the same.

54. (New) An implant as claimed in claim 36, wherein said connecting section is at least partly provided with a smooth surface.

55. (New) An implant as claimed in claim 36, wherein the entire surface of said connecting section is smooth.

56. (New) An implant as claimed in claim 36, wherein one or more self-tapping cutting recesses are provided at least in part on said connecting section.

57. (New) An implant as claimed in claim 36, wherein said implant comprises a head section, and wherein said anchoring structure comprises a tapered proximal section being provided between and interconnecting said first cylindrical section and said head section.

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58. (New) An implant as claimed in claim 57, wherein said proximal section has a frustro-conical shape.

59. (New) An implant as claimed in claim 58, wherein said proximal section at the end interfacing said first cylindrical section has a diameter essentially equal to said first diameter of said first cylindrical section.

60. (New) An implant as claimed in claim 58, wherein said proximal section has a flank angle in the range of 8° - 15° .

61. (New) An implant as claimed in claim 57, wherein said proximal section is at least partly provided with a circumferentially oriented roughness.

62. (New) An implant as claimed in claim 61, wherein said circumferentially oriented roughness is in the form of circumferential beads.

63. (New) An implant as claimed in claim 61, wherein said circumferentially oriented roughness is in the form of a screw thread profile.

64. (New) An implant as claimed in claim 62, wherein the height of said circumferentially oriented roughness is no greater than 0.3mm.

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65. (New) An implant as claimed in claim 57, wherein said head section comprises a collar section having a distal surface abutting said anchoring surface.

66. (New) An implant as claimed in claim 65, wherein said distal surface is inclined inwardly towards the body of the collar section.

67. (New) An implant as claimed in claim 66, wherein said distal surface is inclined inwardly at an inclination angle within the range of 10° - 20° .

68. (New) An implant as claimed in claim 65, wherein said distal surface is concave.

69. (New) An implant as claimed in claim 65, wherein said distal surface is provided with radially spaced circular beads.

70. (New) An implant as claimed in claim 69, wherein said circular beads have a height in the range of 0.1-0.5mm.